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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,051	01/22/2004	Peter E. Oettinger	2003627-0006	3799

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EXAMINER	
KAO, CHIH CHENG G	
ART UNIT	**PAPER NUMBER**
2882	
MAIL DATE	**DELIVERY MODE**
01/08/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/763,051	OETTINGER ET AL.	
	Examiner	Art Unit	
	Chih-Cheng Glen Kao	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 January 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 12, 2007, has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 4, 9, 11, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skillicorn (US 4694480) in view of Miles (US 5631943), Morrison (US 2063329), and Nakamura et al. (US 5517545).

3. Regarding claim 1, Skillicorn discloses an apparatus comprising an X-ray tube that emits X-rays (fig. 6, #26), a high voltage power supply (fig. 6, #66) coupled to said X-ray tube that supplies a high voltage for use with said x-ray tube, and electrical connection (fig. 8c, #78) that connects the X-ray tube to the high voltage power supply, wherein the X-ray tube, the high

voltage power supply, and the electrical connection are encapsulated in a solid, electrically-insulating encapsulant with a radio-opaque material including lead, the encapsulant being in intimate contact with the X-ray tube and the high voltage power supply (col. 5, lines 33-37, and col. 6, lines 26-29).

However, Skillicorn fails to disclose radio-opaque material distributed within the encapsulant, the encapsulant being in direct contact with the X-ray tube, and the encapsulant being substantially free from entrained air.

Miles teaches radio-opaque material distributed within an encapsulant (col. 4, line 27, litharch lead ceramic material). Morrison teaches an encapsulant in direct contact with the X-ray tube (pg. 1, lines 1-10 and 49-53; and pg. 2, lines 30-35). Nakamura et al. teaches an encapsulant being substantially free from entrained air (col. 5, line 55 - col. 6, line 4).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Skillicorn with the material of Miles, since one would have been motivated to make such a modification for better radiation protection (col. 4, lines 21-35) as implied from Miles.

Furthermore, since the Examiner finds that the prior art (i.e., Skillicorn) contained a "base" apparatus upon which the claimed invention can be seen as an "improvement" (with distributed radio-opaque material), and since the Examiner finds that the prior art (Miles) contained a "comparable" apparatus that has been improved in the same way (with distributed radio-opaque material) as the claimed invention, the Examiner thus finds that one of ordinary skill in the art could have applied the known "improvement" technique (of Miles) in the same

way to the "base" apparatus (of Skillicorn) and the results would have been predictable to one of ordinary skill in the art. Therefore, such a claimed combination would have been obvious.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Skillicorn with the material and contact of Morrison, since one would have been motivated to make such a modification for radiation protection, breakage protection, and heat resistance (pg. 1, lines 1-10) as implied from Morrison.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Skillicorn with the teaching of airless encapsulants of Nakamura et al., since one would have been motivated to make such a modification for preventing dielectric failure (col. 5, line 55 - col. 6, line 4) as shown by Nakamura et al.

4. Regarding claim 4, Skillicorn would necessarily have an amount of said radio-opaque material in accordance with a predetermined degree of radiation attenuation for purposes of shielding a user from unnecessary radiation (col. 6, lines 26-29).

5. Regarding claims 9 and 11, Skillicorn further discloses a molded complex shape (col. 5, line 31, and fig. 1, #22) and portability (title).

6. Regarding claim 41, Miles further teaches lead oxide (col. 4, line 27, litharch).

7. Claims 30, 31, 34, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skillicorn in view of Morrison and Nakamura et al.

8. Regarding claim 30, Skillicorn discloses an apparatus comprising an X-ray tube that emits X-rays (fig. 6, #26), a high voltage power supply (fig. 6, #66) coupled to said X-ray tube that supplies a high voltage for use with said x-ray tube, and electrical connection (fig. 8c, #78) that connects the X-ray tube to the high voltage power supply, wherein the X-ray tube is encapsulated in a solid, electrically-insulating encapsulant with a radio-opaque material including lead, the encapsulant being in intimate contact with the X-ray tube and the high voltage power supply (col. 5, lines 33-37, and col. 6, lines 26-29).

However, Skillicorn fails to disclose radio-opaque material distributed within the encapsulant in direct contact with the X-ray tube, and the encapsulant being substantially free from entrained air.

Morrison teaches radio-opaque material distributed within an encapsulant in direct contact with the X-ray tube (pg. 1, lines 1-10 and 49-53; and pg. 2, lines 30-35). Nakamura et al. teaches an encapsulant being substantially free from entrained air (col. 5, line 55 - col. 6, line 4).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Skillicorn with the material and contact of Morrison, since one would have been motivated to make such a modification for radiation protection, breakage protection, and heat resistance (pg. 1, lines 1-10) as implied from Morrison.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Skillicorn with the teaching of airless

encapsulants of Nakamura et al., since one would have been motivated to make such a modification for preventing dielectric failure (col. 5, line 55 - col. 6, line 4) as shown by Nakamura et al.

9. Regarding claim 34, Skillicorn would necessarily have an amount of said radio-opaque material in accordance with a predetermined degree of radiation attenuation for purposes of shielding a user from unnecessary radiation (col. 6, lines 26-29).

10. Regarding claims 31 and 39, Skillicorn further discloses a molded complex shape (col. 5, line 31, and fig. 1, #22) and portability (title).

11. Claims 2, 3, 12, 18, 20, 32, 33, and 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skillicorn, Miles, Morrison, and Nakamura et al. as respectively applied to claims 1 and 30 above, and further in view of Steigerwald (US 4504895).

12. Regarding claims 2, 3, 12, 32, and 33, Skillicorn as modified above suggests an apparatus as recited above. Skillicorn further discloses electrical connections (fig. 8c, #78 and connection between #66 and 84) and a high-voltage multiplier (fig. 8c, #66) driven by a transformer (fig. 8c, #82).

However, Skillicorn fails to disclose a resonant converter that drives a high voltage power supply via an amplitude modulated waveform drive at a substantially resonant frequency, and a step up transformer connected to said resonant converter.

Steigerwald teaches a resonant converter that drives a high voltage power supply (abstract, lines 1-3) via an amplitude modulated waveform drive at a substantially resonant frequency (col. 4, lines 40-48) and a step up transformer (fig. 4, #35) connected to said resonant converter.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the apparatus of Skillicorn as modified above with the converter and transformer of Steigerwald, since one would have been motivated to make such a modification for more adjustability and faster response time (col. 1, lines 13-15 and 49-55) as implied from Steigerwald.

13. Regarding claims 18 and 20, Skillicorn further discloses a molded complex shape (col. 5, line 31, and fig. 1, #22) and portability (title).

14. Regarding claims 42-44, Steigerwald further teaches wherein the amplitude modulated waveform drive responds to a sensed resonant frequency (col. 4, lines 40-48).

15. Claims 21, 23, 25, and 29 are rejected as being under 35 U.S.C. 103(a) as being unpatentable over Skillicorn in view of Miles, Nakamura et al., and Malcolm et al. (US 4979198).

16. Regarding claim 21, Skillicorn in view of Miles and Nakamura et al. suggests a method as recited above.

However, Skillicorn fails to disclose surrounding with a conductive layer.

Malcolm et al. teaches surrounding with a conductive layer (col. 10, lines 15-23).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the method of Skillicorn as modified above with the conductive layer of Malcolm et al., since one would have been motivated to make such a modification for better protection (col. 10, lines 15-23) as implied from Malcolm et al.

17. Regarding claim 23, Skillicorn further discloses encapsulating power (fig. 6, #66) and control (fig. 6, #78) circuit components in a solid block including a radio-opaque material (fig. 6, #42).

18. Regarding claims 25 and 29, Skillicorn would necessarily have an amount of said radio-opaque material in accordance with a predetermined degree of radiation attenuation for purposes of shielding a user from unnecessary radiation (col. 6, lines 26-29), and portability (title).

19. Claims 5, 14, and 35 are rejected as being under 35 U.S.C. 103(a) as being unpatentable over Skillicorn, Miles, Morrison, Nakamura et al., and Steigerwald as respectively applied to claims 1, 12, and 30 above, and further in view of Malcolm et al. (US 4979198).

Skillicorn as modified above suggests an apparatus and method as recited above.

However, Skillicorn fails to disclose a thin conductive layer over an electrically insulating material to provide electric shielding.

Malcolm et al. teaches a thin conductive layer over an electrically insulating material to provide electric shielding (col. 10, lines 15-23).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the apparatus and method of Skillicorn as modified above with the conductive layer of Malcolm et al., since one would have been motivated to make such a modification for better protection (col. 10, lines 15-23) as implied from Malcolm et al.

20. Claims 6-8, 15-17, 26-28, and 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skillicorn, Miles, Morrison, Nakamura et al., Steigerwald, and Malcolm et al. as respectively applied to claims 5, 14, 21, and 35 above, and further in view of Davies (US 5927482).

Skillicorn as modified above suggests an apparatus and method as recited above.

However, Skillicorn fails to disclose a thin conductive layer composed from a thin metal foil made from at least one of copper and aluminum adhered adhesively.

Davies teaches a thin conductive layer composed from a thin metal foil adhered adhesively (col. 2, lines 51-60). Davies further teaches using copper or aluminum for shielding (col. 2, lines 47-53).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the apparatus and method of Skillicorn as modified above with the metal foil of Davies, since one would have been motivated to make such a modification for better protection (col. 2, lines 51-52) as implied from Davies.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the apparatus and method of Skillicorn as modified above with copper or aluminum, since it is within the general skill of a worker in the art to select a known material on the basis of its suitability. One would have been motivated to use copper or aluminum for better protection (col. 2, lines 47-52) as implied from Davies.

21. Claims 10, 19, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skillicorn, Miles, Morrison, Nakamura et al., and Steigerwald as respectively applied to claims 1, 12, and 30 above, and further in view of Courtois (US 3643094).

Skillicorn as modified above suggests an apparatus as recited above.

However, Skillicorn fails to disclose an x-ray tube and power supply connected by a coaxial cable.

Courtois teaches an x-ray tube and power supply connected by a coaxial cable (col. 1, lines 14-16).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the apparatus of Skillicorn as modified above with the coaxial cable of Courtois, since one would have been motivated to make such a modification for preventing break down (col. 1, lines 14-16) as implied from Courtois.

22. Claims 13 and 22 are rejected as being under 35 U.S.C. 103(a) as being unpatentable over Skillicorn, Miles, Morrison, Nakamura et al., Steigerwald, and Malcolm et al. as respectively applied to claims 12 and 21 above, and further in view of Holland, Sr. et al. (US 6320936).

Skillicorn as modified above suggests an apparatus and method as recited.

However, Skillicorn fails to disclose epoxy.

Holland, Sr. et al. teaches epoxy (col. 7, line 6).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the apparatus and method of Skillicorn as modified above with the epoxy of Holland, Sr. et al., since it is within the general skill of a worker in the art to select a known material on the basis of its suitability. One would have been motivated to make such a modification for more easily shaping a radiation absorbing material to a component (col. 7, lines 1-15) as implied from Holland, Sr. et al.

23. Claim 24 is rejected as being under 35 U.S.C. 103(a) as being unpatentable over Skillicorn, Miles, Nakamura et al., and Malcolm et al. as applied to claim 21 above, and further in view of Dewey (US 4143009).

Skillicorn as modified above suggests a method as recited above.

However, Skillicorn fails to disclose casting using a two-part epoxy-resin system.

Dewey teaches casting using a two-part epoxy-resin system (title and abstract).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the method of Skillicorn as modified above with the casting system of Dewey, since one would have been motivated to make such a modification for reducing stresses and warping (col. 1, lines 42-47) as implied from Dewey.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

24. Claims 1-44 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 8-19, 63-74, and 83 of copending Application No. 10/370,783 in view of Miles.

Application No. 10/370,783 claims a module and method comprising an x-ray tube, a high-voltage supply, and electrical connection, wherein the tube, power supply, and electrical connection are encapsulated in an electrically-insulating encapsulant, radio-opaque material including at least one of a lead compound using a two-part epoxy-resin casting system, a resonant converter, a step up transformer, high-voltage multiplier, wherein an amount of said material is in accordance with a predetermined degree of radiation attenuation, a thin conductive layer formed from a metal foil made of copper adhered adhesively, wherein the electrically-

insulating material is molded into a complex shape, wherein the power supply is connected by a coaxial cable, and wherein the module is portable (claims 8-19, 63-74, and 83).

However, Application No. 10/370,783 fails to claim lead distributed within.

Miles teaches lead distributed within (col. 4, line 27, litharch).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Skillicorn with the material of Miles, since one would have been motivated to make such a modification for better radiation protection (col. 4, lines 21-35) as implied from Miles.

This is a provisional obviousness-type double patenting rejection.

Response to Arguments

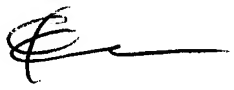
25. Applicant's arguments with respect to claims 1-44 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Chih-Cheng Glen Kao
Primary Examiner
Art Unit 2882